The Impact of Technology on Accessibility and Pedagogy :
the Right to Education in Sub-Saharan Africa

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ABSTRACT :

The whole world has now been reduced to a form of global village. This has been made possible as a result of technological development and third-world countries can therefore not afford to sit on the fence about this lofty innovation, lest development which permeates all aspects of socio-economic fabric of any nation may not only remain a mirage, but may also totally elude such countries. Knowledge is power and such legitimate power can practically be derived from education. Education, which should be a legal right of all the citizens of the world if illiteracy is to be defeated, and for national development not to be stunted, is still largely an elusive commodity to a massive world population, due to many factors. However, the advent of open and distance learning globally could go a long way to widen accessibility to education for the majority of working adults, flexibly so that the learning and earning processes can go on side-by-side. Paradoxically however, there still abounds a gamut of militating factors which could possibly render the effectiveness of this mode of learning impotent, if care is not taken, particularly among the developing countries of the world. This paper therefore, takes a critical view of the general problems associated with the operation of open and distance learning in sub-Saharan Africa, especially for the delivery of tertiary education. The paper concludes by making some recommendations, which should be embraced by the African heads of governments on one hand, and the higher institutions of learning including their students on the other. If the problems are objectively interrogated and the recommendations systematically considered for implementation, this will obliterate the temerity with which open and distance education programmes and their products are being looked at by the public. This will therefore enhance the opportunities to access higher education programmes both for personal improvement and for national development.

1. INTRODUCTION :

An important discussion, which attracts regular attention, is the argument on how education can be accessible and become affordable to all. Added to this fact, is the motivation to update previously acquired knowledge by college and university personnel through participatory continuing education programmes via workshops, conferences, seminars, in-service training and professional work visits. Personal motivation is at present so much driven by the financial benefits to the individuals rather than knowledge enrichment and overall professional development; and which, of course, should influence organizational and capacity growth. Over several years, increasing numbers in university and college enrolment have been observed, with a concomitant rise in graduates (including graduates from the open and distance learning), but without the least commensurate transformation in professional behaviour and / or academic credibility, at least in absolute terms.

According to a UNESCO (2008) document, education is a reliable tool for transformation towards sustainable development, increasing people's capacities to transform their visions for society into reality. Using education as a transformation device, and in particular for sustainable development, presupposes that the personnel should evolve a dynamism for professional behaviour, persistently driven by information-search and validation apart from its utilization for which quality in education hinges. Education for sustainable development can only be propelled to a functional state, when the benefits of technology are properly annexed and logically applied. Education for sustainable development, for instance, has four main thrusts, and these are (a) promoting and improving basic education, (b) reorienting existing education programmes at all levels to address sustainable development, (c) developing public awareness and understanding of sustainability, and (d) providing training. Suffice it to say, however, that all these need the benefits of technology for them to be more comprehensible and thereby derive greater utility.

2. METHODS :

2.1 Technology in Creating Access to Education :

Transforming open and distance learning in concrete terms, in order to achieve global benefits would usually have some attached implication for the adequacy of the media resources used - whether print or electronic, or both. With distance education dating back to 1728, with the advertisement in the Boston Gazette from "Caleb Phillips, Teacher of the new method of Shorthand" (Holmberg, 2005, p.13), its programmes whether in pedagogy or andragogy, have disseminated information via technology and its multiple instructional systems design which aim at students who are not physically on site. Programme facilitators and the learners, within operational compromise, communicate at their own beneficial times through exchanging printed or electronic media (technology) that ably facilitate, in a real or apparent time-frame, their educational needs. The educational needs of recipients vary to different extents and capacities, and can be affected by variations in the use of technology available within a region or a country.

Distance education in its earlier days in many parts of Africa, began as physically on site programmes. Even though the practice has slightly been modified, its audience is not at present, as expansive as to include catchment areas outside of the country of original operation, except for UNISA. In Africa, distance education institutions operate simultaneously both through correspondence and through face-to-face contact, and with high technology (Osiki, 2008). This operation can be seen until recently in Nigeria for instance, and may be the result simply from the kind and the regularity of the electric power supply in the country. When this is compared to that in the University of London, where the first distance learning degrees were offered as far back as 1858 (University of London, 2007a), its diversification as well as coverage becomes unfathomable. In its page on 'Our History', the University of London (2007b) gave its present student enrolment at over 40,000 students in more than 180 countries worldwide, and who are studying for more than 100 different awards. The first examination taken at approved centres in Britain was in 1859. The University of South Africa can only be compared in terms of it being the first leading African distance education institution to offer correspondence education. This was only sixty years ago in 1946, and since then it has become a leading university in Africa pioneering lifelong education through correspondence courses throughout the sub-region. Madagascar now employs distance learning for first-year university students, and the University of Abidjan in the Cote d'Ivoire has tested out satellite-linked training in mathematics, information science, and other sciences through links with French universities, (Saint, 1997). Recently Tanzania, Zimbabwe, and Botswana have established their own distance learning institutions for tertiary

studies, just as the University of Namibia provides distance instruction combined with campus-based courses. Market-driven programmes as they are developed and advanced presently in South Africa including those for the benefit of its regional neighbours, are expected to continue to thrive as long as the importance of e-learning is well conceptualized to cater with open access to all, providing education to the majority even in rural remote areas of Africa.

2.2 Global Empowerment and the Challenge to Job Mobility :

One common observation in education generally, and with particular reference to open and distance learning (ODL), is the rapid increase in the beneficial use and application of technology in facilitating the individual and collective ambitions of people. Development in the twenty-first century worldwide, including in Africa, has seen the arrival of new technological advantages in the purposeful utilization of radio, television, and the internet in advancing the operation of distance education. Considering some of the different types of distance education courses, which of course include (i) correspondence conducted through regular mail, (ii) internet conducted either synchronously or asynchronously, (iii) telecourse / broadcast where content is delivered via radio or television, (iv) CD-ROM where the student interacts with computer content stored on a CD-ROM, and (v) pocket PC / mobile learning where the student accesses course content stored on a mobile device or through a wireless server. The methodologies being employed in distance learning in Africa are gaining prominence and becoming dynamic as a valuable tool for expanding access to higher education with added value of quality and relevance.

In Europe and in other developed regions, the advanced use of technology of print, audiovisual broadcasting, audiovisual teleconferencing, computer-aided instruction, e-learning / online-learning, computer broadcasting / webcasting, continues to vary by region and may be not at the same operational level of utilization in all regions. The African adaptation and varied use of technology as instruments of effective academic dividends and transformation is being much discussed now and appreciated. Radio, particularly in some parts of Africa, remains a very potent, portable accessible and effective medium of communication, especially in the developing nations. This is because, with the use of battery cells, radio can reach wider coverage, even into places where the electricity power supply is either limited or completely not available. Radio is also very prominently used in India and it is being used there by universities to broadcast educational programmes of different varieties such as teacher education, rural development, and programmes in agriculture for farmers. Others programmes include those for science education, creative writing, and mass communication, in addition to traditional courses in liberal arts, science, and business administration.

Even though the application of technology has brought about benefits of wider access to higher education through the adoption of distance learning, the argument continues questioning its rational advantages, especially for skills development and job mobility.

The use of distance education is becoming more popular in Africa. This is because the recipients of the lifelong education process are either employed, or are working, while at the same time learning in the most convenient and appropriate time and place. However, despite the benefits of technology brought in its application in ODL, a high illiteracy rate still persists, which simultaneously presenting a gloomy picture on education parity and gender issues. Concerning its call for 'Education for All', UNESCO (2008) reports that at least 880 million adults are still illiterate – and these numbers do not include those for children, and the majority of the adult illiterates are women. UNESCO (2008) further reported that among about 800 million children under 6 years of age, about one third have not yet benefited from any form of early childhood education. Also among the additional 113 million children

older than six years old, 60% are girls who have not had access to primary schooling. The issue gets more complex and confusing when the debate on economic and relevant skills empowerment and family happiness including social adjustment are the central issues of discussion.

The Economic Commission for Africa (Amoako et al., 2005), discussing the issue of regional and country differences in growth performance, reported that most countries are failing to meet the 7% or more required to achieve Millennium Development Goal 1 to halve poverty by 2015. Only six countries had achieved 7% GDP growth in 2004 - including Chad (39%), Equatorial Guinea (18.3%), Liberia (15%), Ethiopia (11.6%), Angola (11.5%), and Mozambique (8.3%). Seventeen African countries registered positively but less than 4% growth was achieved in 2004, and two other countries registered negative growth. Between 2000 and 2004, only five countries achieved 7% growth (Equatorial Guinea, Chad, Mozambique, Angola and Sudan), another nine grew at 5~7% (Ethiopia, Rwanda, Liberia, Uganda, Burkina Faso, Mauritius, Senegal, Tanzania and Botswana), and two contracted (the Seychelles, and Zimbabwe). The average rate of unemployment for 2003 is estimated at 10.9% for Sub-Saharan Africa and 10.4% for North Africa, higher than most other developing regions. Unemployment in Sub-Saharan Africa was estimated at 29.4 million, with marked differences by sub-region, country, gender, and age group. West Africa had the lowest unemployment rate in 2003, at 6.7%.. Southern Africa had the highest rate, at 31.6%. Among countries, the unemployment rate is low in Uganda, at 7%, but high in Lesotho, at 39%. Paradoxically however in 1997, young females in Sub-Saharan Africa had a lower unemployment rate (18.4%) than males (23.1%), but their labour force participation is now at a low ebb.

It is reported that slow-growing economies are unable to generate enough job opportunities to absorb the large number of young people qualifying from institutions of learning every year, and this might have undermined the gains from technology in revamping or facilitating the creation of jobs (Mutume, 2006). Even though statistics have said that young unemployed people in Sub-Saharan Africa constitute just 33% of the labour market, officially recent figures are put at over 40% in some African countries. The question is therefore whether or not technological advantages have brought in unprecedented employment problems to Africa, or are there labour mobility difficulties.

Concerning labour mobility, Long & Ferrie (2003) suggest that mobility consists of changes in the location of workers both across physical space (geographic mobility) and across a set of jobs (occupational mobility). Geographic mobility can further be subdivided into short-distance and long-distance moves, as well as into voluntary and coerced migrations. Occupational mobility can be lateral (within a broad class of jobs similar in socioeconomic status) or vertical (from one job to a better or worse job). The difficulties in accessing relevant data, especially within the African sub-regions, has made it impossible to measure the extent of mobility in all these dimensions, and how they are related, in the majority of the slow-growing African economies and which - in much of the time - are battered with war and conflicts arising from politically motivated crises. At the aggregate level, labour mobility conveys important economic benefits. The reallocation of workers across regions and, or nations in Africa, permits the exploitation of complementary resources as they are discovered in new places, while reallocation across sectors makes possible the use of new technologies and the growth of new industries. At the individual level, mobility allows for improvements in the economic circumstances of those whose skills or aspirations are a poor match for the job or location in which they find themselves (Long & Ferrie, 2003).

The impact of labour mobility extends well beyond economic considerations, however. The ability of fluid U.S. labour markets, for instance, to deter labour radicalization has been recognized by Karl Marx, Selig Perlman, and Stephan Thernstrom. Since the work of Frederick

Jackson Turner more than a century ago, scholars have debated the role of the frontier in forging a particularly American political economy in the U.S. Sociologists have examined the impact of mobility on the operation of communities and interpersonal relationships, and political scientists have considered how mobility affects political participation and coalition formation. In the African sub-regions, job mobility has not been easy even within and among southern neighbours. Very stringent measures, such as cultural and family ties, poor skills availability and other incidental problems have rendered the idea of mobility difficult while the idea of ethnic suspicion is on the increase. Skill search and employment, in most parts of the African sub-regions, is the outcome of proximity and opportunity rather than on being qualified and with experience and skills.

Despite the massive benefits one could derive from the use of technology in advancing man's needs, several studies have however been conducted to examine why unemployment is still prevalent. Considering the difference between job-seeking behaviour as contrasted with the processes of vocational choice and work adjustment, Stevens (1973) found that job-seeking behaviour pattern centered around three factors, which are ;- (i) individuals exhibiting specific goals and self actualised behaviour and who obtain desired jobs, were most successful ; (ii) those with vague, confused goals and passive-dependent behaviour, fail to obtain desired jobs ; and finally, (iii) those exhibiting a mixture of the two have a modicum of success in obtaining desired jobs. Thus, in consequence, and as Stevens concluded, job-seeking behaviour is a determinant of two factors, and these are: (a) the degree of vocational choice crystallization; and (b) the individual's personal characteristics, dynamics and life style. This findings were similar to those much earlier by Sheppard & Belitsky (1968), who in a similar study found that: (i) reemployment success was greatest among those who did not avoid applying to certain companies and who used a wide-ranging job-hunting approach and (ii) social-psychological factors determined,

in part, how early unemployed workers began their job search, their method of choosing companies at which to check, the number of companies at which to apply, and other behaviours, and (iii) workers finding new jobs through the State Employment Service had lower motivation and higher anxiety than workers finding new jobs through other techniques.

Thus in obtaining desired jobs, and without any equivocation, some of the following should be observed ;

o   willingness of applicants to imbibe relevant job-seeking behaviour (i.e. internet regular job-searching, newspaper patronages, visit to companies and, or organizations)
o   submission of unsolicited applications / resume
o   personal contact through key-connection persons
o   must have relevant qualification and experiences
o   seek expertise suggestions on modus for writing and submitting application documents
o   the problem of relocation should not be an issue (i.e. there should be personal willingness to move) ; and
o   having the required skills for the new job.

Prominent emphasis however, and that is difficult in obliterating the superior advantages in adapting technology, is the particular gains that evolve from its application in facilitating ODL. E-learning advancement and growth are the outcomes of available part-time or adjunct instructors who could disseminate their lectures through a staggering audience population simultaneously, irrespective of the multiple locations, and where the financial burden is far less than when compared to face-to-face conventional education on a per-class basis (Ruth, 2006). Although the employment of part-timers as programme facilitators has its peculiar challenges, the growth in the number of available instructors has been significant, and noted by the American Association of University Professors (AAUP, 2007), during the period 1975-2003

full-time tenure track positions increased by 18%, while non-tenure-track positions grew at 10 times that rate. In areas with most need that focus on specialized skills, labour may be encouraged to be willing to move when some incentives are provided and favourable conditions are met.

3. RESULTS :

3.1 Research Outcomes from Dynamic Distance Support Programmes :

Open and Distance Learning (ODL) has benefited immensely through the application of multi-media technological systems which have benevolently reduced the world to a global village. In education generally, and ODL in particular, quite a lot of evidence has now accumulated to show the types, variation, gains and effects of support programmes. These are through the mechanism of print, audiovisual broadcasting, audiovisual teleconferencing, computer-aided instruction, e-learning / online-learning, computer broadcasting / webcasting, radio, television, as well as instant messaging and other forms of computer-based communications. They are now fundamentally enhancing academic ease and professional competence, boosting emotional preparedness and the stability needed for sustainable academic performance and achievement. Educational support is also provided through these technological means, for providing a good basis, to learners at a distance in advancing their potential for effective skills acquisition, particularly in information-seeking behaviour, research development, evaluation and reporting skills, while in addition, curtailing the likelihood of any academic frustration.

The outcomes from using multiple technologies for inducing academic development and professional performance in both medical-physician behaviour and in patient health care have been investigated by Davis, O'Brien, Freemantle, Wolf, Mazmanian & Taylor-Vaisey (1999). Among 64 physicians of whom 50% were practising physicians, results showed that interactive technology enhanced the activity of participants while professional practice and health care outcomes were also boosted. Confirming further on the marginal utilitarian value of the multi-dimensional sub-systems of ODL supporting services, O'Brien, Freemantle, Oxman, Wolf, Davis & Herrin (2001) in a similar study reported that interactive workshops, subsumed in multi-application of techniques, resulted in moderately large changes in professional practice while face-to-face didactic sessions alone did not.

3.2 Barriers Limiting Effective ODL Practice in Sub-Saharan Africa :

The ease and readiness to adapt and use the immense values of e-learning and its associated resources in open and distance learning across Sub-Saharan Africa, at least to full capacity, is at the moment being bombarded with lots of challenges and these are summarized below ;

o   unstable power supply
o   economic drive to amass own wealth by some distance education institutions
o   commercializing education at the expense of quality offered
o   high cost and weak socio-economic viability of learners who may be reluctant to invest in technological facilities for knowledge acquisition purposes
o   technological illiteracy among learners, even if they have access to modern technology for learning purposes
o   ruralization of geographical typography of the learners, where they are bereft of the paraphernalia of modern life, that restricts their access to modern facilities.
o   fraud, bribery and corruption among some lecturers and site tutors
o   quantity of qualified tutors sacrificed at the expense of quality programme facilitators
o   infiltration of cultural dilution and value disorientation by neo-imperialism of foreign institutions
o   problems with proper counselling and mentoring for learners, and
o   inadequate learner support provision

4. DISCUSSION :

As a way of creating wider accessibility to education while at the same time maintaining quality in all aspects of distance education programmes across the length and breadth of African continent, and for distance education products not to be treated with levity and distance education programmes not to be looked down on, the following few recommendations among a host of others, have been advanced for the purpose of this paper.

4.1 Policy Framework :

There is unnecessary proliferation of distance education institutions under the guise of creating wider access to education while in actual sense such effort is motivated by the issue of commodification for economic rewards to many mushroom distance education institutions which may only exist to exploit the innocent learners. It is therefore, high time that a policy framework should be developed, particularly within the African sub-regions, by governments of nations. For instance in the African leadership forum, a framework to harness resources into regions as to advance the creation of the Southern, Western, Eastern, Northern and the South-Central regions, (i.e. a regionalized ODL) could suggest a common fund and a two-year period rotational leadership of the ODL across the African continent for some harmonisation of the distance learning programmes. The suggested framework may be comparable to such forums as the OAU, EU, and ECOWAS, and AAU which have political and economic as well as academic advantages across African nations. The suggested framework is being proposed as similar to the International Council of Distance Learning (ICDL) and the African Council for Distance Education (ACDE), but which should be constituted with more empowerment and functional responsibility, coupled with commitments from the heads of governments of African nations. Such a framework might reduce economic waste, maximize efficient use of different categories of needed personnel, give more credibility to degree certificates issued, adequately monitor academic quality, and concomitantly improve professional behaviour. This is imperative as education is a potent weapon of national development, growth and economic sustainability.

4.2 Institutional Collaboration :

Collaboration according to Braimoh (2002) brings about positive results to the individuals within and around the geographical boundaries, for instance of the two distance education institutional partners, no matter how wide their geographical location is to one another. On the individual premise, it will create unrestricted access to education so that the hitherto inequality of educational opportunities can be easily reduced. On a wider institutional level however, overhead costs can be reduced by pooling resources together, best practices in ODL can be developed, curricula and course materials can be exchanged, modern technology can be shared, and quality can be maintained while constant benchmarking can be guaranteed.

4.3 Provision of Standardized Learning Materials :

Most course writers in distance education institutions do not have in-depth knowledge of the students who are the intended users for which they produce modules, and some writers may be deficient in the art and practice of writing distance learning course materials. Therefore, the course materials which are ultimately produced are drab, esoteric, non-compliant to the global standard and sometimes they are mere sources of hindrance for effective learning to take place. Considering the fact that the tutors and the taught may not ever meet face to face, for any eventual clarification of concepts, ideas or burning issues to be discussed, it becomes essentially necessary for such materials to be prepared in a better self-explanatory fashion and to be excellently user-friendly. Anything that falls short of this may lead to frustration on the part of the learners who may finally decide to drop out from such a distance learning programme.

4.4 Adoption of Appropriate Technology :

We do not intend to sound very conservative or naïve, we however, believe that the mere trait of 'copy cat' syndrome, simply because the distance education institution wants to achieve credibility and cheap popularity with the offering of distance education programmes via the application of some sophisticated technological devices when such may not be called for, will not serve any useful purpose to anyone involved. While we must work hard to innovatively revolutionize our delivery strategy for the benefit of our heterogeneous clientele, particularly in meeting the standards of global practice, we however need to be cautious when adopting technology that such is appropriately relevant to the needs, aspirations, environment and utilitarian purposes of our target audience. Failure to recognize our peculiar situations vis-à-vis the technologically developed countries, may bring us to the inevitability of being caught in the web of philosophical reality of what late Julius Nyerere stressed in one of his speeches in the 70s when he was still the head of state of the Republic of Tanzania that "while the advanced countries of the world are making efforts to reach the moon, we in the developing countries are only struggling daily to reach the villages". It is now history that the developed countries have already reached the moon but unfortunately, African countries are still struggling to reach the villages with development programmes that will alleviate rural illiteracy, poverty and HIV/AIDS.

4.5 Research Activity to improve Quality :

Whether we are talking about conventional face-to-face institutions or open and distance learning institutions, the major common factor between the two types of institution is education, which is the major commodity we are concerned with in order to bring about acceptable outcomes in terms of human resource development for the benefit of the general public. Therefore, it must sink into our minds as academics in academia that research informs and improves teaching as teaching directs research activity to be undertaken. If we must be content with the knowledge we have acquired in a discipline about ten or twenty years ago, either teaching or producing course materials with such archaic and irrelevant ideas, certainly, the quality of the outcomes which we shall be manufacturing will be unacceptable on the global competitive market. This will also constitute a serious wastage of the national per capita income and a time-bomb of eventual national calamity as development will ultimately be stunted. Teaching and research must go hand in hand and every academic in any tertiary institution must, as a matter of institutional policy, be engaged in both, not on an occasional basis but as a consistent routine, otherwise, universities will soon become a brewing ground for encouraging mediocrity.

4.6 Constant Institutional Performance Audit :

To guarantee universal institutional practice, not only should the distance education institutions engage in internal and external performance audit but also that they should deliberately embrace the benchmarking process, to review the programme performance, quality of the staff members and the available teaching and learning facilities. It is equally imperative to follow-up on the performance of our products after graduation, to assess their standard and quality at work while there must be regular introspection of the management and governance processes of such distance education institutions. This is because there is no-one who can claim to be an island to him / herself, therefore, institutional and programme evaluations as aptly suggested by Braimoh (2003) should be undertaken on a regular basis.

5. CONCLUSION :

Globalization of higher education programmes using an ODL strategy, particularly in Africa, will annex and utilize the immense benefits of technologically

powered learning as an on-going process. ODL practice is expanding in Africa both in scope of operation including service delivery via multimedia technologies while the recipients are equally developing emotional preparation to embrace the ODL varied opportunities in meeting the challenges that are most likely suited for the achievement of transformation in professional behaviour and academic credibility. ODL in Sub-Saharan Africa is presently grappling with difficult challenges from unhealthy political terrain and also in trying to match the achievements of Western institutions, in terms of operation, scope and wider audience coverage. Although, the target audience of students and the teachers in ODL in Africa is growing with improvement in telematics, unfortunately well-articulated and sustainable national policies on ODL have yet to be formulated. The support for ODL by African political leaders should be of paramount importance and should be a top priority for African governments. This will not only pave the way towards guaranteeing people's right to education but it will also generate positive hope for the majority of the African people to have unrestricted access to comprehensive and quality education in order to achieve the EFA millennium goals for Africa.

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